Bulletin

CHEMOTHERAPY

Treatment Is the Tool

NATIONAL
TUBERCULOSIS
ASSOCIATION

Bulletin

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Editorial Director

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NTA Board Endorses Arden House Recommendations

The Board of Directors of the National Tuberculosis Association devoted the first half-day of its mid-winter meeting on February 26 and 27 to a discussion of the Arden House Conference on Tuberculosis, at the conclusion of which the Board endorsed the principal recommendation and the other eleven recommendations. It also directed that:

1. The National Tuberculosis Association exert a maximum effort over the next few years to implement the major recommendation of the Arden House Conference in close collaboration with the United States Public Health Service.

2. The National Tuberculosis Association work in cooperation with the U.S. Public Health Service to achieve the goals suggested by the other eleven recommendations.

3. Constituent and affiliated tuberculosis associations be urged to take leadership in their areas to implement the Arden House Conference recommendations.

4. The National Tuberculosis Association staff be asked to report to the Board of Directors one year from now on the progress made to implement the major recommendation and the other eleven recommendations.

The Arden House Conference had confined its recommendations to certain selected deficiencies of current tuberculosis control programs, and hence there was no specific mention in them of the continuing importance of hospitalization. To avoid any possible misinterpretation, the Board of Directors passed an additional statement to the effect that initial hospitalization of all persons with communicable tuberculosis is recommended, as well as continued hospitalization when the home conditions are not satisfactory for treatment of the patient at home.

The Arden House recommendations have also been endorsed by the Executive Committee of the American Trudeau Society and endorsed in principle by the Executive Committee of the Association of State and Territorial Health Officers.

These endorsements are important because, if all patients are to receive adequate chemotherapy, there must be adequate case-finding programs and an adequate follow-up program for each patient. Close cooperation between the medical profession and health officers, who are in charge of communicable disease control, is essential to be certain that the patient does stay under medical supervision until his treatment is completed. The health officers usually will delegate the responsibility for follow-up to their public health nurses. The program implies, as well, intensified education of physicians in the proper treatment of tuberculosis and education of public health nurses in following up on TB patients and the contacts of these patients.

Detailed guides and program plans are necessary at the national, state, and local levels, and plans are already under way for their production.

Strong leadership from tuberculosis associations can bring to fruition the conclusion reached by the Arden House conference that *tuberculosis can be wiped out in this country*. The challenge is great and the time for action is now.—**James E. Perkins, M.D.**, *Managing Director, National Tuberculosis Association.*

Tuberculosis Chemotherapy as a Public Health Measure

Walsh McDermott, M.D.

THE proper exploitation of antimicrobial therapy as a *public health measure* for the control of tuberculosis in this country is the major recommendation of the Arden House Conference. This quite properly calls to mind certain important questions. Naturally, these questions (and many others) were carefully considered by the conferees. As the present writer was an active participant in these proceedings, there can be no pretense of editorial disinterestedness in this review of what seem to be the major questions involved.

First: **Can a nation-wide public health attack on an infectious disease be based on the chemotherapy of individual instances of the disease?**

This is precisely what *was* done in the case of syphilis in the nation-wide campaign led by Dr. Thomas Parran of the Public Health Service with the able assistance of two nongovernmental physicians, Dr. John Stokes and the late Dr. Joseph Earle Moore. Thus, the Arden House concept is recognizable as an accepted public health method comparable with the other methods for the wide-scale public health control of infectious diseases. Practicability is the essence of a public health campaign. If a disease is spread by water, one disinfects the water. If introduction of the disease to a country can be prevented by effective immunization of its people, one vaccinates the people. When the microbes of the disease are not very accessible to attack outside the body, one attacks them inside the body. And, to sterilize most or all of the tubercle bacilli in the body of a patient is a perfectly attainable goal in a great majority of instances.

Second: **Who would have to be treated; and should patients be treated whether they wish to receive treatment or not?**

Such a program presumably would be organized in successive stages. The first to be treated would be all persons with active tuberculous infection, i.e., all those with disease in the transmissible or potentially transmissible form. The next priority would be assigned to patients with demonstrable pulmonary lesions that were never treated with drugs and, hence, whose future stability remains in question. Next in priority would probably be *selected groups* of tuberculin reactors who present no other evidence of tuberculous disease. Included in such groups would be infants and preschool children, perhaps certain adolescents, and other such groups that could be shown to be at special risk.

Certainly, no one whose tuberculosis is not in a transmissible form should receive treatment against his wishes, although most persons with tuberculosis—as those with syphilis—actively desire treatment. In the case of persons with highly contagious forms of tuberculous infection, it is generally accepted today that they should be required to take treatment until their disease is in a nontransmissible stage.

Third: **Are we not already doing essentially what is in the recommendation without observing a striking, rapid fall in tuberculosis morbidity?**

In actuality, we are not doing what is in the recommendation, as judged

by the information available. For example, the U.S. Public Health Service estimates on the basis of field studies that, in 1956, about 800,000 Americans with tuberculosis needed medical supervision in the public health interest; yet only one half of this number were actually receiving such supervision.

Fourth: **Who would supervise the treatment?**

The treatment of tuberculous patients in the hospitals and sanatoriums would be as it is now, the responsibility of the chest physicians in charge of such clinical services. In addition, as discussed elsewhere (McDermott, W.: J. Chronic Dis., 1955, *2*, 234), we are witnessing on an ever-widening scale the transfer of the responsibility for the long-term management of the tuberculous patient to the internist and general practitioner. Such a transfer of responsibility for a major disease from one group of physicians to another is unprecedented and represents an unsought consequence of our technologic gains. The problems that this transfer is creating are quite formidable, but they must be faced in any case. Indeed, it is not too unlikely that their solution may prove to be easier and considerably more orderly if a nation-wide antituberculosis campaign based on the Arden House concept becomes a reality.

Fifth: **Does the Arden House recommendation imply the abandonment of the hospital or sanatorium treatment of pulmonary tuberculosis?**

Certainly not. There are large numbers of patients who for one reason or another present situations which can only – or can best – be treated in the hospital or sanatorium. All tuberculosis specialists are agreed, however, that the portion of the treatment represented by chemotherapy should be continued for a much longer period than even the most conservatively managed period of hospitalization. Moreover, many of the leading authorities agree that an impressive proportion of the patients with tuberculosis can be treated entirely at home. The scientific basis for such home treatment has been provided by the carefully conducted study by Hirsch and his associates at the Rockefeller Institute (Am. Rev. Tuberc., 1957, *75*, 359) and the more recent study by the Tuberculosis Chemotherapy Center in Madras, India (Bull. World Health Organ., 1959, *21*, 51). In both studies it was shown that, in the presence of theoretically adequate chemotherapy, it was not possible to detect any influence of physical activity on the generally favorable course of the healing process.

Sixth: **Does a chemotherapy for tuberculosis exist that is both sufficiently effective and safe to warrant employment in the treatment of all cases of tuberculosis as a public health measure?**

In the availability of the three regimens, isoniazid-streptomycin, isoniazid-PAS, and isoniazid alone, we have three highly effective chemotherapies available for use in different sets of circumstances. There has been no serious debate as to the therapeutic effectiveness of daily streptomycin and isoniazid or isoniazid-PAS, although there are certain limitations to the broad-scale usage of the former regimen. Likewise, there appears to be no serious debate as to the wisdom of employing isoniazid alone in certain limited circumstances, for example, in disease prophylaxis, i.e., the treatment of the tuberculin reactor without obvious disease. Whether the employment of isoniazid alone can be safely broadened from this base is a matter of serious debate. With respect to safety, it can be stated with confidence that isoniazid is one of the least toxic drugs in general use in all therapeutics. The toxicities of PAS and of streptomycin are appreciably greater, but are now so well defined that, with simple management, virtually all serious toxicity can be easily avoided. The point for emphasis, therefore, is that, even if the use of isoniazid alone is restricted to chemoprophylaxis, we have available today enough satisfactory tuberculosis chemotherapies to make their employment as a public health measure a feasible procedure.

Seventh: **Is there any urgency in starting a campaign for the employment of chemotherapy of tuberculosis as a public health measure?**

A very definite urgency exists because there can be no real assurance that, whatever the chemotherapy there will not emerge a minority, however small, of drug-resistant tubercle bacilli with the full capability for producing disease. Indeed, it is not always appreciated that this occurs in patients treated with multiple-drug therapy, such as isoniazid-PAS, as may be seen from study of two recently reported series (Phillips, S.: Am. Rev. Resp. Dis., 1959, *80*, 641; Graham Poole and Stradling: Brit. M.J., 1960, *1*, 161). Whereas there is no evidence as yet that such drug-resistant tubercle bacilli are causing appreciable numbers of new infections, yet all biologic experience indicates that we are "working against time" unless equally powerful chemotherapies are developed. The period of time involved may seem rather long–perhaps ten years or more–but it has very definite limits. Thus it is that, if chemotherapy is to fulfill its full potential to bring tuberculosis under control, the public health attack must be made now before the cur-

Notice

Pursuant to article VIII, Section 1, paragraph 4 of the Bylaws of the National Tuberculosis Association, notice is hereby given that the annual meeting of the membership of the Association will be held on May 19, 1960, at 12:30 p.m. in the Pacific Ballroom of the Statler Hilton Hotel in Los Angeles, California.

FABIAN BACHRACH

Dr. McDermott is editor of *The American Review of Respiratory Diseases* and Livingston Farrand Professor of Public Health and Preventive Medicine, New York Hospital—Cornell Medical Center. In addition, he is Consultant in Tuberculosis to the Veterans Administration, Consultant to the Communicable Disease Center of the U.S. Public Health Service, and Consultant to the National Advisory Health Council. Dr. McDermott was one of the participants at the Arden House Conference on Tuberculosis. This article is reprinted in part from the April 1960 issue of *The American Review of Respiratory Diseases* with the permission of *The Review*.

rent irregular and disorganized treatments have swelled this minority of drug-resistant bacilli to the dangerous point. In this respect, the situation is not unlike that in the current global campaign against malaria which admittedly has to be based on the principle of "working against time."

Eighth: **Will the patients take the pills with sufficient faithfulness and for a sufficiently long period to ensure sterilization of most or all of their tubercle bacilli?**

For a person who feels completely well to take a pill daily for a long period of time is a strangely difficult accomplishment in any society. Yet, to a much greater extent than was ever the case before, the advantages of modern medicine are dependent on the assumption of this responsibility by the patient. Obviously, this is a question with broad public health implications quite aside from the questions of tuberculosis control, and should receive very extensive study. The available information is limited, but thus far it indicates that perhaps people are more reliable in this respect than the physicians anticipate. For example, in the USPHS studies of chemoprophylaxis in children who were tuberculin reactors, the isoniazid was not actually *administered* daily by the investigators, but its ingestion was *prescribed*. Of more than 1,000 children for whom isoniazid was *prescribed*, there were two instances of the development of tuberculous disease in contrast to the twenty-eight instances of such disease in a comparable group for whom the placebo was *prescribed*. Deuschle's experience with the Navajo (Am. Rev. Resp. Dis., 1959, *80*, 200) likewise would indicate that, in a properly organized program, enough people are reliable to make the program a successful one.

The ninth question is in many ways the biggest one of all, namely: **Is it reasonable to suppose that all the many forces, facilities, and people in the health movement in the United States could be successfully mobilized to organize a nation-wide campaign in which the chemotherapy of tuberculosis were made a public health measure?**

It would be unrealistic to minimize the enormous effort that would be involved in getting the campaign started. Such a movement would have to gain the enthusiastic cooperation of: the medical profession, both as individuals and as members of organizations; the municipal, county, state, and national health officers; the lay and professional members of the voluntary health movement; and the governmental bodies that have responsibility for the appropriation of money. What would be needed for leadership would be a government and nongovernment team like the old Parran-Moore-Stokes team that so successfully mobilized such a program against syphilis.

If the present writer understands the thinking of the Arden House conferees correctly, they are saying "If you are really serious about the desire to eliminate tuberculosis as a force in the United States, then this is the most practicable and significantly sound way it can be done." As with so many other questions, whether society chooses to put itself to trouble for the attainment of a goal is another matter. The responsible leaders in the U.S. Public Health Service and the National Tuberculosis Association, with its American Trudeau Society, are indicating, in backing this recommendation, that they are serious. It remains for us to show that we are serious too.

Dr. Raleigh Named Medical Director

FABIAN BACHRACH

James W. Raleigh, M.D., Veterans Administration chief of clinical research in pulmonary disease for the past two years, has been appointed medical director of the American Trudeau Society, medical section of the National Tuberculosis Association.

Dr. Raleigh, who has also been executive secretary of the VA-Armed Forces Cooperative Study on the Chemotherapy of Tuberculosis, will assume his new post June 15.

While in Washington, he was assistant clinical professor of medicine at Georgetown University Medical School. He was previously assistant clinical professor of medicine at the University of Vermont College of Medicine.

Since the expansion of the NTA into the broad field of respiratory diseases at the same time that the tuberculosis program has been stepped up, it has become necessary to increase the medical staff, according to James E. Perkins, M.D., managing director of the NTA, in announcing Dr. Raleigh's appointment.

Dr. Raleigh, he added, will advise on the planning and execution of the medical aspects of the control of tuberculosis and other respiratory diseases. His appointment, said Dr. Perkins, will enable Floyd M. Feldmann, M.D., to devote full time to the research program of the NTA-ATS and Julius E. Wilson, M.D., to give full time to the medical education program. Walsh McDermott, M.D., Livingston Farrand Professor of Public Health and Preventive Medicine, Cornell University, College of Medicine, will remain as part-time editor of *The American Review of Respiratory Diseases*. Administrative details of the medical section and liaison with the 42 state Trudeau societies will continue to be the responsibility of the executive secretary, Frank W. Webster.

Tuberculosis Association Support of Medical Education

C. W. Kammeier

A THREE-YEAR-OLD Milwaukee boy was sick and had a fever. A doctor visited the child and diagnosed the illness as an upper respiratory infection. Becoming worse, the child was taken to a hospital, where he remained 17 days. He developed paralysis of an arm and both legs. When discharged, he could not walk and complained of chest and abdominal pains. After a week at home, during which he became progressively worse, his parents took him to a second hospital, where the illness was diagnosed as tuberculous meningitis. Intensive treatment with drugs stopped the infection, but the brain had already been injured. The child died seven months after the onset of illness.

This case history points up the key role played by the practicing physician in the control of tuberculosis. Therefore, instruction in tuberculosis is needed both during and after a physician's undergraduate years in medical school, but anyone familiar with the time pressures upon a busy physician appreciates how difficult it is for him to take time out for detailed study of particular diseases and conditions. Hence the teaching program in the physician's medical school is of the greatest importance. Medical school curriculum directors are aware of the need and seek to meet it despite demands for emphasis on other subjects.

At the Marquette University School of Medicine, Milwaukee, the freshman and sophomore years are devoted to the basic medical sciences and an introduction to clinical medicine. Attention is given at this time to pulmonary anatomy, physiology, and pathology as well as the study of the tubercle bacillus. In the junior year the pulmonary diseases are taught, along with other subjects in medicine and surgery, through lectures, conferences, and clinics in the hospital wards. During two of the three quarters in the senior year, the students are assigned to hospital medical and surgical services. An appropriate share of the time allotted to general medicine is devoted to pulmonary diseases. The third quarter in the senior year is a rotating period. During this time the students have for twenty or more years been assigned to Muirdale, the Milwaukee County tuberculosis sanatorium.

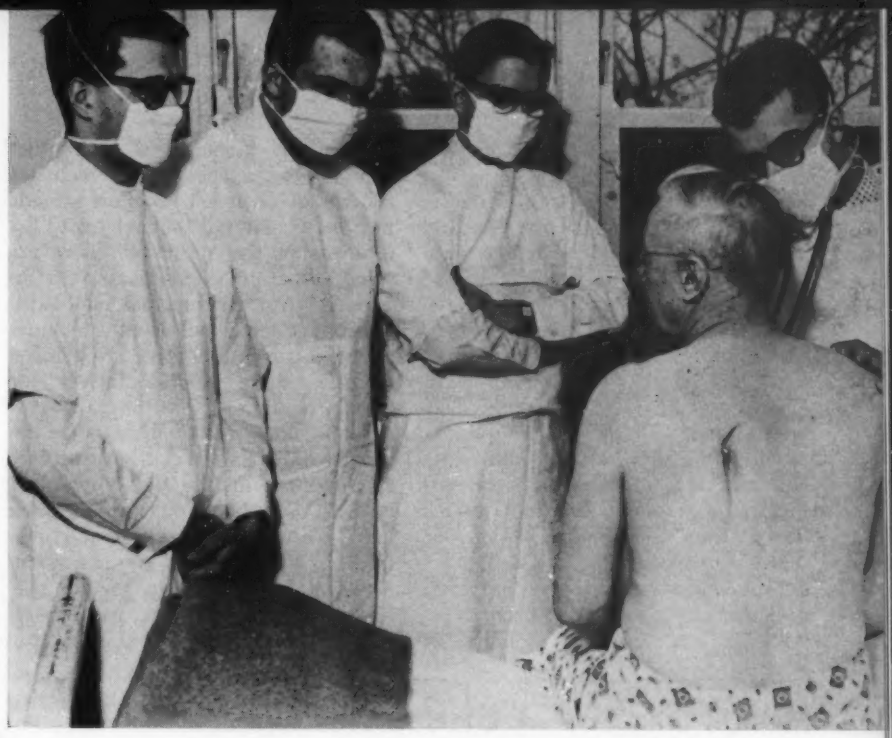
Teaching Supervisor Appointed

In 1949 it became apparent that Anthony V. Cadden, M.D., Muirdale's Superintendent and Medical Director, and his staff were too busy taking care of patients to give the necessary time to the teaching of medical students. John S. Hirschboeck, M.D., Dean of the Marquette School of Medicine, requested that the Wisconsin Anti-Tuberculosis Association finance the employment on the Marquette faculty of a tuberculosis and pulmonary diseases teaching supervisor to organize and administer a teaching schedule and a lecture program. This proposal was accepted, and an annual grant of $4,000 was made by the WATA, which carries on the Christmas Seal Campaign in Milwaukee County. Richard P. Jahn, M.D., a part-time member of the Muirdale staff who had a special interest in teaching, accepted the appointment.

Richard P. Jahn, M.D., tuberculosis teaching supervisor, demonstrates disease for Marquette University senior medical students at Muirdale Sanatorium.

At present, senior medical students in groups of four to six are assigned to Muirdale for nine consecutive days during the rotating quarter. Formal lectures are largely superseded by informal discussion groups, quiz sessions, demonstrations, question-and-answer sessions, and ward work of various types. Members of the Muirdale staff participate generously, and required reading rounds out the program.

The program covers laboratory aids and techniques in the diagnosis of pulmonary tuberculosis and other chest diseases; demonstration of the pathogenesis of tuberculosis by X-rays and anatomical specimens; correlation of findings by X-ray and physical examination; extra-pulmonary tuberculosis; nontuberculous diseases of the chest, including carcinoma of the lung, lung abscess, fungus diseases of the lung, bronchiectasis, silicosis, and allied occupational diseases; medical and surgical treatment of pulmonary tuberculosis, and demonstration of pulmonary-function tests. In addition to this program for senior



Marquette University senior medical students spend time on the wards with Muirdale Sanatorium patients.

students, the teaching supervisor presents a group of lectures and seminars during the freshman and sophomore years.

The WATA's original grant was made for a one-year demonstration. The program is now in its eleventh year.

Permanent or Temporary?

Should a tuberculosis association finance indefinitely such a teaching program?

Like many other policy questions, this one cannot be answered arbitrarily. Circumstances vary. Some medical schools have access to more resources than others. Marquette University is a private school without a large endowment; student fees comprise a big share of its operating income. A few months ago it was suggested that the School of Medicine assume a share of the financial responsibility for the program. Inquiry showed that funds could not be made available. Discontinuation of WATA support would mean discontinuation of the teaching position.

The WATA's attitude concerning continued support under these circumstances must be based on its evaluation of the program's importance.

The story of the three-year-old boy who died needlessly of tuberculous meningitis is obviously an extreme and certainly not typical of the handling of medical problems in his community. The point, however, is that tuberculosis associations should be interested in seeing that every medical school graduate has certain information about the prevention, diagnosis, and treatment of tuberculosis. Tuberculosis associations should see to it that more and more physicians support case-finding programs, follow through on patients referred to them with chest X-ray findings, examine and keep under observation every tuberculosis contact, recognize public health as well as personal factors in recommending treatment, and know about and make use of such agencies as health departments, sanatoriums, and tuberculosis associations.

The appointment of a dedicated teacher of tuberculosis and pulmonary diseases in a medical school is one way to achieve these objectives. In one situation a medical school may be able to finance such a teacher. In a second, a demonstration by the tuberculosis association may be necessary to get the activity off the ground. In a third, as at Marquette, long-time Christmas Seal support may be necessary.

Medical schools and tuberculosis associations, working together, can advance medical education objectives in still other ways.

Lectures and Research

For example, the WATA since 1939 has sponsored an annual lectureship at the University of Wisconsin and Marquette University medical schools. These "Dearholt Day Lectures" give medical students the opportunity to hear leaders of the medical profession skilled in tuberculosis and diseases of the chest. Recent speakers have been Daniel E. Jenkins, M.D., Houston, Texas; Robert R. Shaw, M.D., Dallas, Texas; Robert H. Ebert, M.D., Cleveland, Ohio; Roger S. Mitchell, M.D., Denver, Colorado; and J. Burns Amberson, M.D., New York, New York.

Research projects help attract to medical schools scientists who seek new knowledge and also carry teach-

Mr. Kammeier has been executive secretary of the Wisconsin Anti-Tuberculosis Association since 1951. He joined the Michigan Tuberculosis Association in 1928 and subsequently served as executive secretary of the Iowa Tuberculosis and Health Association and the Massachusetts Tuberculosis and Health League. He is a past president of the National Conference of Tuberculosis Workers and of the Mississippi Valley Conference on Tuberculosis. This article was solicited by the Committee on Medical Public Relations of the ATS.

ing responsibilities. Two projects approved by the American Trudeau Society are now in operation at the University of Wisconsin Medical School. Wisconsin's local associations, which carry on the Christmas Seal Campaign in most of Wisconsin outside Milwaukee County, will contribute at least $15,000 toward the total 1959-60 cost of these projects, which total $17,095.

As a final and perhaps unique example, for some years Marquette University senior medical students in groups of about 25 have spent a day in the WATA office. There are four such sessions a year. The WATA organizes for each group a program designed to acquaint the students with the functions and activities of tuberculosis associations and other community agencies involved in tuberculosis control. An effort is made to present material that relates to the interests of the students. There are some formal presentations, but preference is given to informal panel discussions. Each panel usually includes a student representative. Not infrequently these representatives do special reading so that they may participate more effectively. One representative program recently dealt with these topics: finding the tuberculous patient, the tuberculous patient under care, the tuberculous patient comes back, WATA and you, and questions at issue. In addition to WATA professional staff members, participants in this program included a district health officer, a sanatorium medical director, the Division of Vocational Rehabilitation district supervisor, a hospital radiologist, the director of the Milwaukee Health Department division of tuberculosis control, two ex-patients, and two public health nurses.

Programs and relationships such as these are the result of the efforts over many years of both medical schools and tuberculosis associations. One way to build mutual understanding is through the election of medical school faculty members to the tuberculosis association's board. Such board service not only helps develop desirable programs but also leads to a better appreciation of philosophies, objectives, and limitations.

Medical Education—A Lifelong Preoccupation

Julius Wilson, M.D.
Director of Medical Education, ATS

The publication of the Flexner Report on Medical Education in 1910 forced the general adoption of higher requirements for admission to American medical schools, a process started at Johns Hopkins in 1893. In the years since, the demand for a year of internship before practice and the setting up of certifying boards for all specialties have extended formal medical education first to five and then to eight or ten years.

However, the proposition that such an education could give a doctor of medicine the skills and knowledge needed for his many years of practice has not been defensible since the beginning of the century. Such an educational program was sound only while medicine and surgery remained stable in content. But the diagnosis and treatment of pulmonary tuberculosis have changed greatly over the past 15 years. Constant change now compels us to seek continuing education in this as in other fields of medical knowledge.

In 1944 we were still in the era of bedrest and collapse therapy. Roentgenologic demonstration of pulmonary calcifications meant tuberculosis, and the tuberculin test was of unquestioned specificity. Photofluorography and planigraphy were still relatively new methods. Sanatoriums were staffed by physicians who had personally conquered tuberculosis. The dawn of the chemotherapeutic day, already so bright for victims of pneumococcal pneumonia and the venereal diseases, was only a faint glimmer for us. In 1944 we had only equivocal results with gold salts and sulfones but we did have sound procedures for the trial of any new antituberculosis drug.

Within a year the introduction of streptomycin began a complete revolution in the treatment of tuberculosis. Planned therapeutic trials, the amazing clinical triumph of isoniazid beginning in 1952, and the rapid advances of thoracic surgery made possible by the protective action of these drugs have changed both the treatment of individual patients and the whole problem of tuberculosis control.

The phthisiologist has had to become an internist with greater knowledge of other pulmonary and cardiac diseases. The thoracic surgeon has acquired a familiarity with the combinations of antituberculosis drugs equal to that of the internist. The generalist or family physician, in order to serve the patient home from the hospital, has had to keep up with the new medical treatment of tuberculosis, of emphysema, and of inoperable carcinoma of the lung. The great pharmaceutical houses have supplied him with a flood of new drugs, samples, advertisements, and visits from detail men to keep up his education at this level. The Academy of General Practice wisely bases continued membership upon the continuance of more formal education by postgraduate courses.

Fifteen years ago the pace of postgraduate courses, medical society meetings, and medical journals was relatively leisurely. Today we feel compelled to study and to attend conferences or meetings just to keep up with the rapid progress of good medical practice. The clear call issued in 1960 to all those engaged in treating tuberculosis to enlist in a massive attack on this disease as a public health problem, aiming at nothing less than eradication through therapy, also calls upon them to undertake study of the most effective ways to treat this disease.

Just as medical research is called a never-ending search, education should be considered a lifelong preoccupation of all physicians. In every spare minute the medical profession will continue to read journals, study monographs and books, and attend meetings to learn more for the benefit of both the sick and the well.

1960 VA-AF Conference on Chemotherapy

Agnes Fahy

Science Writer

National Tuberculosis Association

"Who are the dead?"

This was the provocative title of a paper presented at the 19th Veterans Administration-Armed Forces Conference on the Chemotherapy of Tuberculosis, held in Cincinnati, February 8 to 11, in which an attempt was made to analyze why some patients do not respond to treatment with antimicrobial drugs.

In a search for common denominators in treatment failures, a critical look was taken at all pertinent data relating to 87 patients who died out of 7,748 included in the U. S. Public Health Service Therapy Trials. It was found that:

- Negroes had a higher death rate than whites. The rate among Negro men was higher than among women; among whites, the rate was slightly higher among women.
- Age was a more important factor than race or sex, the death rate for those more than 45 years of age being decidedly higher than for those in the younger age groups.
- Patients who had far advanced disease with large multiple cavities had a higher death rate than patients who had far advanced disease with small multiple cavities or a single cavity or no cavity. However, patients with far advanced disease, with or without cavity, had a higher death rate than patients with moderately advanced disease at the time treatment was inaugurated. No deaths occurred among the patients with minimal disease.
- Progression of disease was responsible for the deaths of 61 of the 82 deaths among patients with far advanced disease.

"We might hope to make the greatest reduction in mortality by identifying early in treatment those in whom progression of disease is unlikely to be checked by usual therapy," the report stated. "The need for intensified treatment might be anticipated in patients at greatest risk of dying, those over 45 years of age with far advanced disease and large multiple cavities. In a recently published controlled trial, we have found a short course of daily streptomycin plus pyrazinamide effective initial therapy for these patients."

The paper was presented for the cooperative study group by Reginald C. Edson, M.D., of Cedarcrest Hospital, Newington, Connecticut.

Held in cooperation with the National Tuberculosis Association, the chemotherapy conference brought together approximately four hundred persons for an evaluation and discussion of current treatment and other medical developments in tuberculosis and related fields. William B. Tucker, M.D., director of the Pulmonary Disease Service of the VA, and James W. Raleigh, M.D., secretary of the conference, were in charge of plans for the meeting.

Remembrance of Things Past

Shades of phthisiologists of bygone eras seemed to walk in the halls of the Netherland Hilton Hotel, where the conference was held, when a study of Fitzsimons Army Hospital, Denver, was reported. As those versed in the history of consumption know, time was when horseback riding or some other form of exercise was advocated for the tuberculous once the more acute stage of the disease had passed. The Denver paper did not mention horseback riding, but it did bring out that calisthenics and active sports had proved beneficial rather than the contrary among a group of tuberculous soldiers treated at the hospital.

The patients also received sufficiently large dosages of isoniazid to maintain adequate blood levels in each case, used in combination with PAS; in a few instances, streptomycin was substituted for PAS. There were 105 patients in the study. All were original treatment cases, and 62 per cent had moderately or far advanced tuberculosis but without such symptoms as cough and fever, according to Col. James A. Wier, M.C., who gave the paper.

Under the physical rehabilitation program, the patients were started on calisthenics for 15 minutes a day, five days a week, after they had been in the hospital for from two to four weeks. The calisthenics, according to Col. Wier, were at about the same level of activity as regular troops have during their basic training period, and the patients did not have to have rest periods during the day. Later, when the patients had reached the stage where their disease was noncommuni-

cable, active sports were added to the program. The sports included basketball, volley ball, golf, bowling, and swimming.

"A minimum of one hour per day for five days a week was required," said Col. Wier. "However, in practice, due to patient enthusiasm, most patients received about two hours a day of active, competitive sports."

When the patient was ready for sports, he was also given on-the-job training in a position on the Army post commensurate with his training and skills and was eventually gainfully employed for several months before discharge.

The average period of hospitalization for the group was 12 months. On discharge, 100 of the 105 were considered fit for military duty, according to Col. Wier. The only harmful effects noted in any of the patients, he said, were two—fractures of the jaw and ankle received during competitive sports.

Other Papers

Highlights of other papers presented at the conference included the following:

High-dose regimens of isoniazid provide no distinct advantage over low-dose regimens, the rates of emergence of resistant strains being approximately the same with both regimens, although toxic reactions appeared greater with the high doses. This report was based on analysis of data in a cooperative VA study and was presented by H. William Harris, M.D., of the VA Hospital, Salt Lake City.

The use of steroids together with adequate antimicrobial drugs in the treatment of patients with cavitary disease apparently has some advantages. In a controlled study, patients receiving steroids had an increase in vital capacity as compared with the controls. This was reported by J. Richard Johnson, M.D., of the Veterans Administration Hospital, Madison, Wisconsin.

"Tuberculosis disseminators" is the term applied by a group of Baltimore investigators to those patients within the total sputum-positive group who appear to be primarily responsible for the spread of infection. They can, however, be made less infectious by adequate early treatment with appropriate drugs, as reported by Francis O'Grady, M.D., for the Air Hygiene Research Unit of the Veterans Administration Hospital in Baltimore.

A drug synthesized by Noel Rist, M.D., and associates at the Pasteur Institute in Paris and that goes by a long chemical name when not more conveniently tagged Th 1314 appears to have a place in the treatment program where the three top drugs—isoniazid, streptomycin, and PAS—cannot be used. The drug, alpha-ethyl-isonicotinic thioamide, to give it its proper name, is one of a series of thioamides derived from the nicotinic acid family from which isoniazid also springs. Its activity is lower than isoniazid, but, like the latter, it is low in toxicity. A report on a study sponsored by the Clinical Trials Sub-Committee of the British Tuberculosis Association Research Committee (the British call the drug ethionamide), presented by R. W. Riddell, M.D., of Brompton Hospital, London, brought out that the drug was well tolerated, sputum conversion occurred in the majority of instances, and drug resistance developed in most of those in whom sputum conversion did not occur. The drug was given in combination with either cycloserine or pyrazinamide.

In Quebec, Th 1314 was given alone to 11 patients with advanced tuberculosis who did not respond to other therapy and was found to be free from toxicity, "definitely active," and of potential effectiveness in old pulmonary tuberculosis when the organisms are resistant to the major drugs. The report was presented by Guy Marier, M.D., of Quebec, in behalf of Roland Desmeules, M.D., who was unable to be present.

Further encouraging reports on the use of amphotericin B in the treatment of fungus diseases were presented. One was by W. D. Sutliff, M.D., of the Veterans Administration Hospital, Memphis, Tennessee, who discussed a cooperative study, and another was by R. G. Garrison, M.D., of the Veterans Administration Hospital, Kansas City, Missouri.

Press Conference Publicizes Arden House Recommendations

Newspapers throughout the country carried stories about the Arden House TB recommendations as a result of this press conference at the NTA on March 1. Representatives of the national press heard (l. to r.) Walsh McDermott, M.D., Rene Dubos, Ph.D., William B. Tucker, M.D., James E. Perkins, M.D., H. McLeod Riggins, M.D., Herman E. Hilleboe, M.D., and (not pictured) Bertram J. Black, M.S.W.

Present Concepts about Atypical Acid-fast Bacilli

Daniel E. Jenkins, M.D.

THE concept that tuberculosis as it affects human beings is a pure disease caused by only one organism, *Mycobacterium tuberculosis*, variety *hominis*, was strongly upheld by Robert Koch, who discovered the tubercle bacillus in 1882. The subsequent recognition of the bovine variety of tubercle bacillus by Theobald Smith, in 1898, led to a rapid awareness of the fact that this organism was responsible for many cases of human tuberculosis and, ultimately, that this form of the disease could be controlled by such public health measures as pasteurizing milk and slaughtering cattle that were positive to tuberculin tests.

It is of interest that both the human and bovine varieties of tubercle bacilli are capable of producing tuberculosis in a guinea pig and they also possess many other common characteristics, such as a tendency to grow slowly and a staining feature called acid-fastness due to the high lipid content of the organisms.

Since the turn of the last century, many additional acid-fast bacilli have been found in such places as the soil, water, animal dung, marine life, birds, etc., and although these bacteria are acid-fast in their staining properties, they differ from typical human and bovine forms of tubercle bacilli in many ways, such as an inability to cause tuberculosis in the guinea pig and a tendency for some of them to grow rapidly or to grow at room temperature rather than at body temperature.

Because of their inability to infect guinea pigs, these organisms have been regarded for many years as incapable of causing disease in man, and the term "atypical" has been casually used in referring to them. Recently, however, there have been authentic case reports in which these atypical acid-fast bacilli have been the causative agent in human disease, and as a result, there has been a renewed interest throughout the world in finding out precisely what role these atypical organisms actually play in human illness.

ATS Sponsors Study

A few years ago the American Trudeau Society sponsored a cooperative study to ascertain how many cases of human disease caused by these organisms existed throughout the country and what organisms were involved. This study did much to clarify existing opinions, as well as to show what numerous forms of atypical acid-fast bacilli were involved and what areas of geographic prevalence existed for many of these organisms. Meanwhile, bacteriologists as well as physicians have revised their attitudes and now accept the fact that many cases of human tuberculosis are caused by atypical acid-fast bacilli. Ernest H. Runyon, Ph.D., has helped to clarify the problem by devising a working classification that is commonly used and that is given in the box below.

Classification of Atypical Mycobacteria

(Other than *M. tuberculosis, var. hominis* and *var. bovis*. Groupings are based upon pigment formation and growth characteristics, but groups are not entirely homogeneous. Organisms are not virulent for the guinea pig.)

Group I	Pigment appears when organisms are exposed to light during growth period. Growth is slow at 37° C. or at room temperature. (*M. kansasii* is new name given to this species.)
Group II	Pigment is present regardless of the presence or absence of light during growth period. Yellow or orange pigmentation may become a deeper orange-red after exposure to light. Growth is same as in Group I. (Sometimes called scotochromogens.)
Group III	Very little or no pigment formation. Growth about same as Group I. (Sometimes called nonchromogens.)
Group IV	Characterized by rapid growth, usually in 3 to 4 days, at 37° C. or at room temperature or both. Pigment is lacking. (Sometimes called rapid growers.)

At the XV International Tuberculosis Conference, held in Istanbul, Turkey, in September 1959, scientists from many parts of the world discussed their experiences with this problem, and all agreed that the atypical acid-fast organisms are being recognized with increasing frequency as a cause of human disease. Much emphasis was placed upon the need for species identification and proper taxonomic classification of each of the involved micro-organisms, so that the rather unsatisfactory term "atypical" can be avoided in the future and each of these disease-producing bacteria dignified with a specific name. The long-established concept that these organisms are saprophytes and incapable of producing human disease was felt to be in need of change and laboratory workers everywhere alerted to the importance of the problem, since it is they who must recognize these bacilli and warn the clinician.

In the United States, Group I organisms *(M. kansasii)* are most commonly seen as causes of human disease in the central states of Kansas, Illinois, and Texas, although they have been reported less frequently in many other areas. Group III organisms are reported predominantly in the southeastern United States, especially in Georgia and Florida, as causes of human disease. There are only a few reported instances of human disease being caused by Group II (scotochromogens) or Group IV organisms (rapid growers).

Epidemiology

Precise knowledge regarding epidemiology is meager. The atypical acid-fast bacilli are regarded as being somewhat less virulent for the human host than is the true tubercle bacillus, and reported instances of two or more cases of disease in the same household are rare. From data obtained largely by Lydia Edwards, M.D., and Carroll E. Palmer, M.D., of the U.S.P.H.S. using specific tuberculins made from the atypical organisms, infection as shown by a strong reaction to the specific tuberculin is quite prevalent in certain geographic areas, which conform roughly to the patterns mentioned above for the prevalence of disease. Furthermore, in these same geographic areas they are finding a high incidence of weakly positive reactors (5 to 10 mm. of induration) to standard intermediate strength PPD and propose that such weak reactors are exhibiting cross-reactions from infection due to the atypical organisms. More data is needed to confirm these viewpoints.

With the possible exception of *Mycobacterium balnei,* which causes lesions in the skin, there appear to be no reliable clinical or radiological diagnostic criteria for separating patients with disease caused by atypical acid-fast bacilli from those with disease caused by typical tubercle bacilli. Minor differences have been described in the microscopic pathology of lesions caused by Group I organisms, but these are not highly differentiating characteristics, and the identification of the disease remains largely a bacteriologic one. Sometimes delays in the response of the patient to treatment with antituberculosis drugs may be a clue to the presence of disease caused by atypical organisms, since many organisms possess a native resistance to such drugs as isoniazid and PAS.

Results of treatment in large numbers of patients are lacking, most of the available data being restricted to disease due to Group I and Group III organisms. Although disease caused by Group I organisms may be destructive and can cause the death of a patient, it responds reasonably well to treatment with hospitalization, antituberculosis drugs, and surgical resection or collapse after prior medical preparation, although the response is slower as a rule than with typical tuberculosis. Available data tend to convey the impression that the over-all results of treatment do not appear to be quite as favorable in disease caused by Group III organisms and that the incidence of drug resistance, especially to isoniazid, is high. Data are too meager to allow generalizations to be made about treatment of disease caused by Group II or Group IV organisms, but the skin disease caused by *M. balnei* (Group IV) does respond as a rule to medical management.

Increasing Importance

As tuberculosis continues its downward trend, more and more human disease is being recognized as due to the so-called atypical acid-fast bacilli. The disease process simulates true tuberculosis, and depending somewhat upon the specific organism involved, it may present the physician with a serious and prolonged therapeutic problem. The disease is probably best managed in tuberculosis hospitals or sanatoriums, despite the present lack of knowledge about its epidemiology. The laboratory worker has an important responsibility in recognizing these organisms, classifying them properly, and reporting them to the physician, since the associated disease may produce serious disability and death, and relapses following treatment are known to occur.

Dr. Jenkins is professor of medicine at the Baylor University College of Medicine, Houston, Tex., and is immediate past president of the American Trudeau Society. He served as chairman of the Symposium on Atypical Acid-fast Bacilli at the XV International Tuberculosis Conference, in Istanbul, Turkey, in 1959. Dr. Jenkins is currently chairman of the National Tuberculosis Association Respiratory Diseases Committee, a member of the NTA Board of Directors, chairman of the ATS Committee on International Exchange of Scientific Information, and a member of the ATS Executive Committee. His article was solicited by the Committee on Medical Public Relations of the ATS.

Chemotherapy Emphasized in Four ATS Statements

THE use of drugs and other aspects of the treatment of various forms of tuberculosis are covered in four statements by committees of the American Trudeau Society, medical section of the National Tuberculosis Association.

One of the services that the ATS offers the medical world is the preparation of expert statements on special problems in tuberculosis and related diseases. The current statements are particularly timely in view of the recent recommendation of the Arden House Conference on Tuberculosis to use chemotherapy to eliminate tuberculosis as a public health problem.

Three of the statements are by the Committee on Therapy, under the chairmanship of Col. James A. Wier, M.C., Fitzsimons Army Hospital, Denver, and one is by the Committee on Tuberculosis and Respiratory Disease in Children, under the chairmanship of Margaret H. D. Smith, M.D., of New Orleans. The statements were published in the March 1960 issue of *The American Review of Respiratory Diseases*, the ATS journal.

A summary of the statements follows:

Drug Treatment of Pulmonary Tuberculosis

(This statement supplements one issued in 1958)

Isoniazid apparently can be used without other antituberculosis drugs in the treatment of minimal and moderately advanced disease without cavity. Evidence is not available as to whether isoniazid alone is as effective as isoniazid plus PAS in treating patients with a single small cavity.

The superiority of three drugs over two-drug regimens containing isoniazid has not been demonstrated.

There is need to determine whether some patients, particularly rapid inactivators of the drug, should receive isoniazid in doses higher than the conventional 3 to 5 milligrams per kilogram of body weight. If larger doses are given, protective doses of pyridoxine should be prescribed also.

Pyrazinamide is not recommended for long-term therapy and should be used only in a hospital because of the possibility of serious liver damage. The oral dose is 1 gram three times a day.

Streptomycin-pantothenate as a substitute for streptomycin-sulfate does not reduce damage to the eighth cranial nerve, nor does dihydrostreptomycin-pantothenate appear to offer any advantage over streptomycin or dihydrostreptomycin drugs.

Streptovaricin with isoniazid has no advantage over isoniazid alone.

Cycloserine is a useful companion to isoniazid in far advanced cavitary cases. In low dosage, it makes about as effective a companion to isoniazid as PAS does in these cases. In high dosage (0.5 gram twice daily), it causes convulsions in some patients. Toxic effects of high doses on the central nervous system have been reported to be controlled by concomitant administration of sedatives, anticonvulsants, tranquilizing agents, and pyridoxine.

Thiocarbanidin is poorly absorbed from the gastrointestinal tract. Attempts are being made to produce a form that can be assimilated better to achieve adequate serum concentrations.

Kanamycin is closely related to neomycin and cross resistance between the two drugs and between kanamycin and viomycin has been demonstrated. Resistance to kanamycin develops rapidly.

Adrenocorticosteroids and corticotropin have been found to produce beneficial effects in the treatment of tuberculous meningitis, miliary tuberculosis, pleurisy with effusion, and hypersensitivity to antituberculosis agents when the hormones are used with antituberculosis drugs. Experience indicates that the use of hormones with recognized drugs is less dangerous than had been feared.

Chemotherapy of Extrapulmonary Tuberculosis

Principles that govern the treatment of pulmonary tuberculosis also apply to many forms of extrapulmonary tuberculosis; that is, drug therapy should be used for all patients with active tuberculous infection; chemotherapy should be intensive and uninterrupted, usually for two years but at least for one year; surgery, particularly pulmonary resection, should not as a rule be employed until there have been several months of drug therapy.

As for specific forms of extrapulmonary tuberculosis:

Skeletal tuberculosis: Surgical procedures are not always necessary, particularly for non-weight-bearing joints.

Tuberculous lymphadentitis: Tuberculous lymph nodes often resolve slowly under treatment with specific drugs, but eventual healing is usually possible without surgery; abscesses should be drained.

Genitourinary tract tuberculosis: Prolonged treatment is essential for tuberculous cystitis, which, however, responds promptly when infection is recent and superficial. Renal tuberculosis demands prolonged treatment, even longer than in the case of pulmonary disease. Surgery, in addition to chemotherapy, is frequently necessary for tuberculosis of the female genital tract.

Miliary tuberculosis and tuberculous meningitis: Intensive and prolonged treatment is indicated. Isoniazid is the most important drug; streptomycin is usually employed daily for a few weeks or months. The hormones may be beneficial. Intrathecal therapy is rarely used today in treating meningitis.

Treatment of the Adult Tuberculin Converter

The place of antimicrobial therapy in the management of the recent tuberculin converter has not been finally established, and controlled studies are needed to determine more clearly than is now known the advantages of such therapy. Meanwhile, such therapy appears indicated among those believed to be unusually susceptible to tuberculosis, such as adolescents and persons with diabetes or silicosis; those known to have had unusually heavy or prolonged exposure to tuberculosis; and others whom unusual circumstances would suggest that every precaution be taken to prevent clinical tuberculosis.

Either isoniazid alone or isoniazid and PAS are suggested as the drug or the drug combination to be used when it is decided to treat the recent adult converter.

Treatment of Tuberculosis in Children

Isoniazid is the drug of choice in treating all forms of active tuberculosis in children. It can be given in higher doses than for adults, as high as 30 mg. per kg. of body weight in contrast to the usual 4 to 5 mg. per kg. with adults. However, the dose for children is usually about 15 mg. per kg., taken in two or three daily doses. When a second drug is used, PAS is usually employed. Streptomycin is not recommended except under special conditions, such as for tuberculosis and miliary tuberculosis when triple-drug therapy is indicated; dihydrostreptomycin should never be used in treating children because of the danger of toxicity resulting in deafness. Corticosteroids are not recommended for routine use with the infant or young child unless he is dangerously ill, when they may be given until antimicrobial drugs have an opportunity to produce some effect. Drug therapy should extend for at least a year, preferably for 18 months.

All children should be given an intradermal tuberculin test. The first, under ordinary circumstances, should be when the infant is between six and eight months of age. If the test is negative, it should be repeated at least once a year, unless the child has been exposed to tuberculosis. In the latter event, the test should be repeated as often as every four weeks until it becomes positive or until the longest possible period—three or four months—for the development of tuberculin allergy has passed. If the contact with tuberculosis continues, the child should be tested every month until contact ceases or the tuberculin test converts. It is not certain whether the administration of isoniazid to a tuberculin negative young child in constant contact with tuberculosis will prevent infection or whether the drug merely suppresses infection and postpones the development of tuberculin sensitivity.—A.S.F.

Frontiers of Fun

Robert A. Wilson
Treasurer, Tuberculosis and Health Association of Los Angeles County

All roads lead to Disneyland.

The man who would make love to a fat lady has a problem. He can't get his arms around her—and there's so much, he can hardly decide where to start!

When you get to Los Angeles in May, you will appreciate the parallel circumstances faced by your Annual Meeting Local Arrangements Committee in choosing from superabundance the diversions that will fill your spare moments.

So when you settle down in your seat on that airplane, or collapse in the Pullman car chair, or make like Barney Oldfield (get here safely, though), rest assured! We think we know how to inject a gleam of anticipation in your eyes.

As a starter, if you arrive Sunday, we'll coax you to join us at an "early bird" social hour at the Statler, starting at 5:00 p.m. Some interesting rivalry seems to be developing over this affair. A few local Board members and other prideful Californians have been heard remarking, "Notice this firm handshake" and "I bet I can make our guests feel more at home than you can" and similar modest comparisons.

You'll have a fine time at this party. We say this unequivocally. Our only concern is that the Ad Club walls may bulge a bit. But it will set the tone for a highly satisfying week.

During the three-and-a-half meeting-packed days you will find a quiet oasis in the Assembly Room, where refreshing potables will be dispensed, free. Here, too, charming hostesses will provide pleasant conversation, footrests for the footsore, free advice, games of skill, and "answers to all questions not pertaining to politics or the World Series."

Those of you who love beauty and tranquility and can get away for luncheon on Tuesday will be in for a rare treat. Henry Huntington did more than create a railroad empire. He built an estate that compares to the most beautiful in the West—camellia bushes like trees, the greatest rock and cactus garden in the world, and a Japanese tea garden that is the epitome of charm. This visual delight is in addition to the art galleries (here are Gainsborough's "Pinky" and "Blue Boy") and library of rare books, including the Gutenberg Bible. Ladies, please note: For this and similar excursions we strongly suggest that you bring comfortable, low-heeled walking shoes. You know how expansive we are in southern California!

Wednesday is guaranteed to set a mark for gaiety that you will long remember. In the entertainment capital of the world one of our most imaginative artists has created the truly fabulous Disneyland. Ideally you should devote *at least* an entire day to this exploration. But since you are here for serious business, too, we'll start the buses for Disneyland about 2:30 p.m. That big fellow in the white ten-gallon hat, incidentally, is *not* Gary Cooper but your friendly, witty host and guide. You'll undoubtedly discover that the joys of this fantastic spot will entice you to prolong your stay in order to explore it thoroughly.

The park closes at 7:00 p.m., but you'll surely want to join us around the pool at Disneyland Hotel for a social hour, preceding dinner. Dinner is at 7:30 p.m. and is informal, so plan to dress casually. Strolling minstrelettes—that's the diminutive for lush and lovely singing females—will entertain and delight you during the evening.

There are countless other things to see and do, and we hope you'll remain to enjoy a few of them. But, whether or not you are able to, be assured that your pleasure and comfort during your visit is our greatest concern. California welcomes you and promises to make your stay a memorable one.

See you in May—Come to L.A.!

David D. Kuskin Named NTA Business Manager

David D. Kuskin has been appointed business manager of the National Tuberculosis Association, succeeding Henry W. Stevens, who died last January 4. Mr. Kuskin worked with Mr. Stevens as assistant business manager for more than four years.

Before he came to NTA in 1955, Mr. Kuskin was controller of the Automatic Food Service Corporation in Newark, New Jersey.

An honor graduate of Rutgers University, Mr. Kuskin majored in business administration. He was in the armed forces for four and a half years during World War II, serving as a warrant officer in the Army Transportation Corps.

Mr. Kuskin lives with his wife, Evelyn, and their two daughters—Naomi, 4½, and Judy, 3—in Wantagh, Long Island.

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Bert Brod, formerly associated with Westinghouse Appliance Sales in St. Louis, has been named the director of public relations of the Missouri Tuberculosis Association.

Miss Patricia Ann McCall, former women's editor and reporter with the *Sault Daily Star* of Sault Ste. Marie, Ontario, is now a public relations assistant with the New York Tuberculosis and Health Association.

Daniel G. Howell, research and development director of the Los Angeles County Tuberculosis and Health Association, died on February 5, 1960. Mr. Howell was a member of the Los Angeles association's staff since 1949 and also served as executive of its associated Venereal Disease Council.

Mrs. Catherine S. Pomrinse, formerly a staff associate with the Association of Crippled Children in New York, has been appointed director of rehabilitation services of the District of Columbia Tuberculosis Association.

Mrs. Margaret Spalding has resigned from the position of executive director of the Livingston County (Illinois) Tuberculosis Association.

Mrs. Honora K. Wilson, past president of the Los Angeles Tuberculosis and Health Association and a member of the board of directors of the California Tuberculosis and Health Association, has become the director of the new Jewish Information Service for the Aged of Los Angeles. Mrs. Wilson was for ten years the director of social service at the City of Hope Medical Center in Duarte, California.

Mrs. Hazel Knight has been appointed executive secretary of the Umatilla County (Oregon) Tuberculosis and Health Association.

The California Tuberculosis and Health Association has announced several changes. **James Davidson,** formerly a field worker with the association, has been named Personnel Coordinator, replacing **Mrs. Mary French.** And to replace Mr. Davidson, **Miss Constance Freydig,** formerly a public health associate in the research and development division, is now a field worker.

John Coleman, executive secretary of the Albany County (New York) Tuberculosis Association, has resigned to accept an appointment as director of public relations for the National Society for the Prevention of Blindness.

Mrs. Beverly Hughes, director of the Northern (California) TV-Radio Council for TB Education, has resigned to accompany her husband to New York and eventually to Latin America, where he will be engaged in world trade activities. **Ken Langley,** a San Francisco radio writer-director, will take over as director for the Council.

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